

## ABSTRACT

The invention relates to bacterial choline binding proteins (CBPs) which bind choline. Such proteins are particularly desirable for vaccines against appropriate strains of Gram positive bacteria, particularly streptococcus, and more particularly pneumococcus. Also provided are DNA sequences encoding the bacterial choline binding proteins or fragment thereof, antibodies to the bacterial choline binding proteins, pharmaceutical compositions comprising the bacterial choline binding proteins, antibodies to the bacterial choline binding proteins suitable for use in passive immunization, and small molecule inhibitors of choline binding protein mediated adhesion. Methods for diagnosing the presence of the bacterial choline binding protein, or of the bacteria, are also provided. In a specific embodiment, a streptococcal choline binding protein is an enolase, which demonstrates strong affinity for fibronectin.